Chemical Refinery Is Completed

At a cost of more than seven and a half million dollars, construction work on the new Metals Refinery, employing a chemical metal recovery system, has been completed at the National Lead Company property southeast of Fredericktown. Almost two years in the making, the new refinery is expected to enable the St. Louis Smelting and Refining Division of the National Lead Company to produce seven percent of the world's mine production of strategic cobalt and be the second domestic producer, accounting for thirty percent of the domestic cobalt production.

The Belgian Congo in Africa leads the world in production of cobalt with about 75 percent of the total production.

According to Harold Krueger, Manager of the St. Louis Smelting and Refining Division, the position of cobalt in this atomic, jet-propelled age has become more and more important. "Cobalt-60," Kruger said recently "now occupies the most useful and powerful seat in the group of radio-active materials for industrial research." In this use cobalt metal is treated with radium or other radio-active material and the cobalt product thus is called Cobalt-60.

Cobalt, for the most part, is used extensively in high temperature-resistant steels, essential for the production of jet aircraft.

Many people, according to Krueger, said the problem of recovering and separating the small quantities of cobalt and nickel in the mill residues of the Fredericktown property could not be solved. "Certainly," he added, "the meaning of the word 'cobalt,' taken from the German word 'kobald' meaning 'goblin' or 'unwanted character,' has been real for all those who have been involved in this work."

Krueger dispelled the myth that "cobalt bombs" will be produced at the new refinery. The chemical principal, he said, as it applies to Fredericktown ores, was invented jointly by the Chemical Construction Corporation and the National Lead Company. The refinery will separate copper, nickel and cobalt from iron concentrates, originally discarded as residue but stockpiled since 1944.

Basically, Krueger told a D-N reporter, primary efforts of the workings here will still be directed toward a high recovery of lead and copper in clean concentrates, without sacrificing maximum recovery of cobalt or nickel, to be retained in a third concentrate.

At present there are only two other plants in the United States producing cobalt. One is located in Cornwall, Pennsylvania, the other at Garfield, Utah.

Krueger pointed out the main difference between this refinery and other ore refineries is that this one will use chemicals to separate the minerals from each other and the ore. Standard refineries use heat.

Natural gas is reformed to use in the process and this is essentially hydrogen, which has led some people to speculate on the possibility of hydrogen bomb production here—an assumption, Krueger said, that is entirely unfounded and untrue.

In addition to the standard lead mining operations, cobalt, nickel and copper will be produced in metal form. Nickel and cobalt, classed as critical materials, will be supplied to the Government. Under the Defense Production Act the Government was authorized to secure critical materials, to encourage their production and to make loans to concerns for the construction of necessary facilities to accomplish this. In return the Government is to get a portion of the materials produced.

The National Lead Company received a government loan and construction of the refinery by the Chemical Construction Corporation was started in May 1952. Except for a steel strike in 1952 and delays in delivery of other critical materials, the actual construction of the job was completed essentially on schedule.

"The presence of cobalt in ores of this area was first noted in 1818. "The discovery at this time," Krueger said, "developed interest and a determination to produce the valuable metal or its compounds that has been practically without interruption and, likewise, without success."

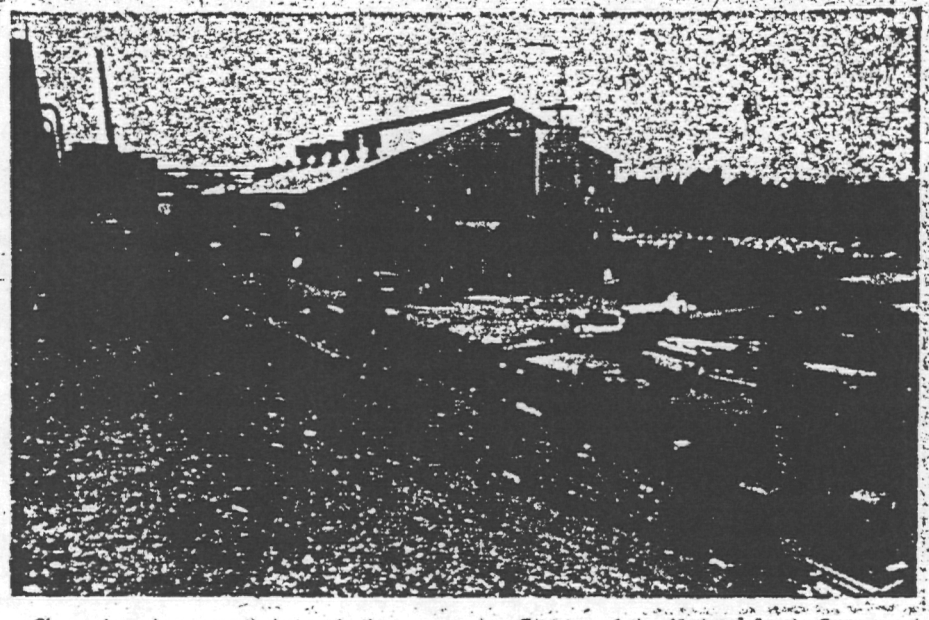
The method of extracting cobalt, nickel and copper from ores by chemical rather than by the usual smelting and refining methods, has been described as basically new and revolutionary and, as mentioned earlier, was invented jointly by the Chemical Construction Corporation and the National Lead Company for treatment of Fredericktown ores.

Krueger sketched a brief history of the property, beginning in 1847 when the shaft was originally sunk and operated under the name of Buckeye Copper Mining Company. It was abandoned in 1849 because of the California Gold Rush.

The property was mined again by Copper Creek Mineral and Mining Company in 1860 and abandoned due to Civil War skirmishes and no refinery being able to treat nickel-cobalt ores. Frank Schulte, a self-made miner and prospector of Fredericktown, became interestd and optioned property to several individuals and concerns, after doing some drilling.

Krueger said from 25 to 30 technicians and engineers will be required to operate the refinery and act as supervisors, and 50 to 100 men would also work on non-technical phases of the job.

The manager said that a solution to the long-standing cobalt-nickel separation problem is now in sight. "When this becomes a reality," he concluded, "Missouri will have every right to be proud of its position in the cobalt world of today and of the indomitable spirit of all those who have been involved in the Buckeye Mine. Perhaps then 'cobalt' will have a much different meaning to those people who have devoted so much effort toward finding the solution to this problem than that now given by the dictionary as an 'unwanted character', or 'goblin'."



Shown here is a recent photo of the new chemical refinery at the National Lead Company property here. The refinery was completed recently by the Chemical Construction Corporation at a cost of seven and a half million dollars and should enable the St. Louis Smelting and Refining Division of the National Lead Company to realize an output of seven percent of the world's production of cobalt. At the peak employment period about 485 workers were employed on the project which took almost two years to complete.